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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,810	08/25/2003	Naoki Imachi	SNY-039	1318

20374 7590 10/19/2006

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EXAMINER

CHU, HELEN OK

ART UNIT PAPER NUMBER

1745

DATE MAILED: 10/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/646,810	Applicant(s) IMACHI ET AL.	
	Examiner Helen O. Chu	Art Unit 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>8/15/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's Amendment was received on August 8, 2006. Claim 1 has been amended. Claim 17 has been cancelled.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action.

Claim Rejections - 35 USC § 102

3. The rejections under 35 U.S.C. 102(b), as being anticipated by Cho (JP 11-126633) on claims 1-4 and 9-16 are withdrawn because Applicant has amended claim 1.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwamoto et al (US Publication 2002/0039677 A1).

In regards to claim 1-16, the Iwamoto et al reference teaches a non-aqueous electrolyte secondary battery (Paragraph 3) with a polyethylene separator (Paragraph 104), an electrolytic solution made of ethylene carbonate and a gamma-butyrolactone solvent (Paragraph 7) and teaches a tetrahydrofuran carbonate as an additive (Applicants' wettability agent; Paragraph 42) at a preferable 0.5-5 weight by parts

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(Paragraph 44). The Iwamoto et al reference also teaches if the amount of additives is less than 0.1 part by weight, the effect to inhibit evolution of gases is not improved so much, and if it exceeds 10 parts by weight, the film formed on the electrodes is too thick and discharge characteristics deteriorates. Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to choose the instantly claimed value through process optimization, since it has been held that the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable values involve only routine skill in the art. See *In re Boesch*, 205 USPQ 215 (CCPA 1980). Though the Applicants' claimed invention requires a tetrahydrofuran as an additive, under the conditions given in the battery and in combination with the electrolytic solution, the Iwamoto et al reference teaches an equivalent ester tetrahydrofuran derivative. These compounds share close structural similarities between chemical compounds of homolog, analogues, and isomers. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use tetrahydrofuran because one skilled in the art would expect similar chemical structure to exhibit similar properties. See *In re Payne*, 606 F.2d 303, 203 USPQ 43 (CCPA 1963) and see *In re Dillion*, 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1991).

Furthermore, it would be inherent that the reductive decomposition potential of the wettability improving agent is no greater than 0.0V because this is only a reference state and that the intrinsic properties of the wettability agent tetrahydrofuran carbonate has a decomposition potential of 4.8 - 5.2 V.

Response to Arguments

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6. Applicant's arguments filed August 2, 2006 have been fully considered but they are not persuasive.

Applicant's principal argument is

A) an ether (tetrahydrofuran) and a carbonate (tetrahydrofuran carbonate) have significant differences in chemical characteristics and properties.

In response to Applicants, please consider the following:

A) Tetrahydrofuran carbonate is an ester carbonic acid derivative of tetrahydrofuran. They are both strong Lewis bases having a similar property of donating electrons and neutralizing a Lewis acid such as hydrofluoric acids present in lithium batteries as evidenced by Ishidoya et al. (US Patent 5,660,937; Column 12, Lines 35-60).

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen O. Chu whose telephone number is (571) 272-5162. The examiner can normally be reached on Monday-Friday 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Trainer Susy Tsang Foster can be reached on (571) 272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HOC


SUSY TSANG-FOSTER
PRIMARY EXAMINER